

Having thus described the invention, it is claimed:

1. ~~A process for manufacturing and packaging a variety of ice cream products on a~~
processing line comprising: filling liquid raw materials into at least one mixing tank; mixing said
liquid raw materials in said at least one mixing tank; cooling said liquid raw materials to a
temperature near the freezing point of water whereby said liquid raw materials become ice cream;
5 providing a supply of open topped, unlabeled trays; filling said trays with said ice cream; hardening
said ice cream filled trays in a cryogenic hardener; and, applying lids and labels to said hardened ice
cream filled trays, thereby creating an ice cream product in a closed multiple serving container.

2. The process of claim 1, wherein said cryogenic hardener sprays cryogenic fluid on
said open ice cream containing trays in said hardener.

3. The process of claim 2, wherein said cryogenic fluid starts as a liquid and becomes
a gas during said hardening step.

4. The process of claim 3, wherein said gas circulates within said hardener cooling said
ice cream.

5. The process of claim 1, wherein said lids are applied to said trays forming a closed
container and labels are then applied to said container.

6. The process of claim 1, wherein printed matter is applied to said lid and said lid is
then applied to said tray forming a closed container.

7. The process of claim 1, wherein said tray is generally rectangular.

8. ~~The process of claim 7, wherein said tray has a low aspect ratio.~~

~~9. The process of claim 1, wherein said tray is relatively shallow and has an open top of relatively large area.~~

10. The process of claim 9, wherein said tray is blow molded plastic.

11. The process of claim 10, wherein said tray is blow molded at the site of filling.

12. A container for multiple serving portions of ice cream comprising: a generally rectangular plastic tray having a generally flat bottom, four side walls having a height and an open top, said four side walls comprising a foot side wall, a head side wall, a right side wall, and a left side wall; said foot side wall and said head side wall having a first width, said right side wall and said left side wall having a second width, said foot side wall having a generally planar foot outer surface generally perpendicular to said bottom, said foot side wall having a lid accommodating portion having an outer surface displaced from said foot outer surface, said foot lid accommodating portion outer surface being generally parallel to said foot outer surface but displaced therefrom; and, a generally rectangular lid adapted to engage said tray and close said tray open top, said lid having a generally planar top and a side flange generally perpendicular to said top, said side flange having a foot portion having a generally planar outer surface; said flange foot portion outer surface and said tray foot portion outer surface being generally coplanar when said lid is engaged to said tray.

13. The container of claim 12, wherein said head side wall, said right side wall and said left side wall diverge outwardly and upwardly from said bottom at a slight angle.

14. The container of claim 13, wherein said slight angle is about 1 degree.

~~15. The container of claim 12, wherein said side walls and said bottom are joined by~~

rounded corners.

16. The container of claim 15, wherein said rounded corners have a radius of curvature of about one-half inch.

17. The container of claim 12, wherein said tray is relatively shallow and said top has a relatively large area.

18. The container of claim 12, wherein said tray has a rib around the entire periphery of said tray on the outer surface near the top of said side walls.

19. The container of claim 18, wherein said rib is continuous.

20. The container of claim 12, wherein said tray has a large flat shallow recess indented upwardly in said bottom.

21. The container of claim 12, wherein said lid side flange is continuous.

22. The container of claim 21, wherein said lid flange has rounded corners joining four straight side portions.

23. The container of claim 12, wherein said lid top has a large flat shallow recess indented downwardly occupying most of the area of said lid top.

24. The container of claim 23, wherein said lid recess is adapted to accommodate the bottom of a tray from an identical container.

~~25. The container of claim 23, further comprising a label in said lid top recess.~~

26. The container of claim 12, wherein said container is adapted to stand stably on said bottom and said foot.

27. The container of claim 25, wherein said container is adapted to stand stably on said bottom and said foot and said label is visible when said container is standing in either orientation.

28. The container of claim 12, wherein said container is resealable.

29. The container of claim 12, wherein said container is stackable and reusable.

30. The container of claim 12, wherein said foot outer surface is continuous.

31. The container of claim 12, wherein said foot outer surface occupies the majority of the width of said foot side.

~~32. The process of claim 11, wherein said lid is blow molded at the site of filling.~~

33. An improved process for manufacturing and packaging ice cream products for shipment according to customer order information, comprising:

providing liquid raw materials in a mixing tank;

mixing said liquid raw materials in said mixing tank;

5 cooling said raw materials near the freezing point of water until said raw materials become ice cream;

adding flavoring additives to said ice cream according to said customer order information;

10 filling at least a first portion of an open topped shipping container with said ice cream
and said flavoring;

 mixing the contents of at least said first portion of said shipping container in said
shipping container;

 hardening said ice cream in a hardener; and,

 applying a lid to said shipping container.

34. The process of claim 33, further comprising applying a label to said lid prior to
applying said lid to said shipping container.

35. The process of claim 33, further comprising applying a label to said lid subsequent
to applying said lid to said shipping container.

36. The process of claim 33, further comprising applying printed matter to said lid prior
to applying said lid to said shipping container.

37. The process of claim 33, further comprising applying printed matter to said lid
subsequent to applying said lid to said shipping container.

38. The process of claim 33, wherein said hardener sprays cryogenic fluid on said ice
cream in said shipping container.

39. The process of claim 33, further including selectively filling a second portion of said
shipping container with prepared food materials prior to filling said first portion with said ice cream
according to said customer order information.

40. The process of claim 39, said prepared food materials being selected from the group

consisting of cake, crumble, and graham crackers.

41. The process of claim 39, including selectively mixing the contents of said second portion with the contents of said first portion according to said customer order information.

42. The process of claim 33, said shipping container being blow molded.

43. The process of claim 33, further including selectively adding solid, semi-solid, and liquid food ingredients into at least said first portion of said shipping container prior to hardening said ice cream according to said customer order information.

44. The process of claim 43, wherein said food ingredients are selected from the group consisting of chocolate, candy, nuts, crackers, cookies, marshmallow, fruit, spices, brownies, caramel, fudge, and peanut butter.

45. The process of claim 43, including mixing said ice cream with said food ingredients prior to hardening said ice cream.

46. The process of claim 33, further including obtaining said customer order information through an electronic communication medium.

47. The process of claim 46, including obtaining said customer order information by periodically polling a customer sales database.

48. The process of claim 46, including obtaining said customer order information from a customer by periodic downloads from a customer sales database.

49. The process of claim 33, including obtaining said customer order information electronically from a customer cash register.

50. The process of claim 33, further including obtaining customer sales information from a customer through an electronic communications medium, and providing said customer order information based on said customer sales information.

51. The process of claim 50, said customer sales information being obtained from a customer cash register.

52. An improved process for manufacturing and packaging ice cream products for shipment according to customer order information, comprising:

providing liquid raw materials in a mixing tank;

mixing said liquid raw materials in said mixing tank;

cooling said raw materials near the freezing point of water until said raw materials become ice cream;

providing at least one open topped shipping container;

filling at least a first portion of said shipping container with said ice cream;

adding flavoring additives to said ice cream in said shipping container according to said customer order information;

mixing the contents of at least said first portion of said shipping container in said shipping container;

hardening said ice cream in a hardener; and,

applying a lid to said shipping container.

53. The process of claim 52, further comprising applying a label to said lid prior to applying said lid to said shipping container.

54. The process of claim 52, further comprising applying a label to said lid subsequent to applying said lid to said shipping container.

55. The process of claim 52, further comprising applying printed matter to said lid prior to applying said lid to said shipping container.

56. The process of claim 53, further comprising applying printed matter to said lid subsequent to applying said lid to said shipping container.

57. The process of claim 52, wherein said hardener sprays cryogenic fluid on said ice cream in said shipping container.

58. The process of claim 52, further including selectively filling a second portion of said shipping container with prepared food materials prior to filling said first portion with said ice cream according to said customer order information.

59. The process of claim 58, said prepared food materials being selected from the group consisting of cake, crumble, and graham crackers.

60. The process of claim 58, including selectively mixing the contents of said second portion with the contents of said first portion according to said customer order information.

61. The process of claim 52, said shipping container being blow molded.

62. The process of claim 52, further including selectively adding solid, semi-solid, and liquid food ingredients into at least said first portion of said shipping container prior to hardening said ice cream according to said customer order information.

63. The process of claim 62, wherein said food ingredients are selected from the group consisting of chocolate, candy, nuts, crackers, cookies, marshmallow, fruit, spices, brownies, caramel, fudge, and peanut butter.

64. The process of claim 62, including mixing said ice cream with said food ingredients prior to hardening said ice cream.

65. The process of claim 52, further including obtaining said customer order information through an electronic communication medium.

66. The process of claim 65, including obtaining said customer order information by periodically polling a customer sales database.

67. The process of claim 65, including obtaining said customer order information from a customer by periodic downloads from a customer sales database.

68. The process of claim 52, including obtaining said customer order information electronically from a customer cash register.

69. The process of claim 52, further including obtaining customer sales information from a customer through an electronic communications medium, and providing said customer order information based on said customer sales information.

70. The process of claim 69, said customer sales information being obtained from a customer cash register.

71. The process of claim 62, further including selectively filling a second portion of said

shipping container with prepared food materials prior to filling said first portion with said ice cream according to said customer order information.

72. The process of claim 71, said prepared food materials being selected from the group consisting of cake, crumble, and graham crackers.

73. The process of claim 71, wherein said food ingredients are selected from the group consisting of chocolate, candy, nuts, crackers, cookies, marshmallow, fruit, spices, brownies, caramel, fudge, and peanut butter.

74. The process of claim 71, further including adding a label to said lid.

75. The process of claim 71, further including adding printed matter to said lid.

76. The process of claim 71, wherein said hardener sprays cryogenic fluid on said ice cream in said shipping container prior to applying said lid on said shipping container.

77. A system for manufacturing and packaging ice cream products from liquid raw materials for shipment according to customer order information, comprising:

at least one mixing tank adapted to mix liquid raw materials:

a cooler receiving said liquid raw materials from said mixing tanks after being mixed thereby, adapted to cool said raw materials near the freezing point of water until said raw materials become ice cream;

a supply of open topped shipping containers;

at least one filler receiving said ice cream from said mixing tank and providing said ice cream to at least a first portion of said shipping containers in a controlled fashion according to said customer order information;

a flavoring dispenser adapted to selectively add one of a plurality of different flavor additives to said ice cream in said shipping container according to said customer order information;

an ice cream mixer adapted to mix the contents of at least said first portion of said containers;

15 a hardener receiving said shipping containers from said ice cream mixer and hardening said ice cream; and,

a lidder adapted to apply lids to said shipping containers.

78. The system of claim 77, further including means for selectively pre-filling a first portion of said shipping container with prepared food materials prior to providing said ice cream to said shipping container in accordance with said customer order information.

79. The system of claim 78, said prepared food materials being selected from the group consisting of cake, crumble, and graham crackers.

80. The system of claim 77, further including means for applying at least one label to said lids.

81. The system of claim 77, further including means for applying printed matter on said lids.

82. The system of claim 77, wherein said hardener sprays cryogenic fluid on said ice cream in said shipping container.

83. The system of claim 77, further including means for molding said supply of shipping containers.

84. The system of claim 77, further including means for selectively adding solid, semi-solid, and liquid food ingredients into at least said first portion of said shipping container prior to hardening said ice cream according to said customer order information.

85. The system of claim 84, wherein said food ingredients are selected from the group consisting of chocolate, candy, nuts, crackers, cookies, marshmallow, fruit, spices, brownies, caramel, fudge, and peanut butter.

86. The system of claim 84, further including means for mixing said ice cream with said food ingredients prior to hardening said ice cream.

87. The system of claim 77, further including means for obtaining said customer order information through an electronic communication medium.

88. The system of claim 77, including means for obtaining said customer order information by periodically polling a customer sales database.

89. The system of claim 77, including means for obtaining said customer order information from a customer by periodic downloads from a customer sales database.

90. The system of claim 77, including means for obtaining said customer order information electronically from a customer cash register.

91. The system of claim 77, further including means for obtaining customer sales information from a customer through an electronic communications medium, and means for generating said customer order information based on said customer sales information.

92. The system of claim 84, further including means for selectively pre-filling a first portion of said shipping container with prepared food materials prior to providing said ice cream to said shipping container in accordance with said customer order information.

93. The system of claim 92, said prepared food materials being selected from the group consisting of cake, crumble, and graham crackers.

94. The system of claim 92, further including means for obtaining said customer order information through an electronic communications medium.

95. The system of claim 92, further including means for obtaining customer sales information from a customer through an electronic communications medium, and means for generating said customer order information based on said customer sales information.

96. A container for multiple serving portions of ice cream comprising: a generally rectangular plastic tray having a generally flat bottom, four side walls having a height and an open top, said four side walls comprising a foot side wall, a head side wall, a right side wall, and a left side wall; said foot side wall and said head side wall having a first width, said right side wall and said left side wall having a second width, said foot side wall having a generally planar outer surface generally perpendicular to said bottom; said foot side wall having a lid accommodating portion having an outer surface displaced from said foot outer surface; and, a generally rectangular lid adapted to engage said tray and close said tray open top, said lid having a generally planar top and a side flange generally perpendicular to said top, said side flange having a foot portion having a generally planar outer surface; said flange foot portion outer surface and said tray foot portion outer surface being generally coplanar when said lid is engaged to said tray.

97. The container of claim 96, wherein said side walls and said bottom are joined by

rounded corners.

98. The container of claim 97, wherein said rounded corners have a radius of curvature of about one-half inch.

99. The container of claim 96, wherein said tray is relatively shallow and said top has a relatively large area.

100. The container of claim 96, wherein said tray has a rib around the entire periphery of said tray on the outer surface near the top of said side walls.

101. The container of claim 100, wherein said rib is continuous.

102. The container of claim 96, wherein said tray has a large flat shallow recess indented upwardly in said bottom.

103. The container of claim 96, wherein said lid side flange is continuous.

104. The container of claim 103, wherein said lid flange has rounded corners joining four straight side portions.

105. The container of claim 96, wherein said lid top has a large flat shallow recess indented downwardly occupying most of the area of said lid top.

106. The container of claim 105, wherein said lid recess is adapted to accommodate the bottom of a tray from an identical container.

107. The container of claim 105, further comprising a label in said lid top recess.
108. The container of claim 96, wherein said container is adapted to stand stably on said bottom and said foot.
109. The container of claim 107, wherein said container is adapted to stand stably on said bottom and said foot and said label is visible when said container is standing in either orientation.
110. The container of claim 96, wherein said container is resealable.
111. The container of claim 96, wherein said container is stackable and reusable.
112. The container of claim 96, wherein said foot outer surface is continuous.
113. The container of claim 96, wherein said foot outer surface occupies the majority of the width of said foot side.

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